

PATENT COOPERATION TREATY
PCT
INTERNATIONAL PRELIMINARY EXAMINATION REPORT
(PCT Article 36 and Rule 70)

REC'D 02 APR 2004

WIPO PCT

Applicant's or agent's file reference 47119	FOR FURTHER ACTION See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)	
International application No. PCT/IT 03/00211	International filing date (day/month/year) 07.04.2003	Priority date (day/month/year) 12.04.2002
International Patent Classification (IPC) or both national classification and IPC B31F1/07		
Applicant: FABIO PERINI S.P.A.		

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.

2. This REPORT consists of a total of 8 sheets, including this cover sheet.

This report is also accompanied by ANNEXES, i.e. sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

These annexes consist of a total of 2 sheets.

3. This report contains indications relating to the following items:

I Basis of the opinion
II Priority
III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
IV Lack of unity of invention
V Reasoned statement under Rule 66.2(a)(ii) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
VI Certain documents cited
VII Certain defects in the international application
VIII Certain observations on the international application

Date of submission of the demand 10.10.2003	Date of completion of this report 01.04.2004
Name and mailing address of the international preliminary examining authority  European Patent Office - P.B. 5818 Patentlaan 2 NL-2280 HV Rijswijk - Pays Bas Tel. +31 70 340 - 2040 Tx: 31 651 epo nl Fax: +31 70 340 - 3016	Authorized Officer J-E. Söderberg Telephone No. +31 70 340-3612



**INTERNATIONAL PRELIMINARY
EXAMINATION REPORT**

International application No. PCT/IT 03/00211

I. Basis of the report

1. With regard to the **elements** of the international application (*Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17)*):

Description, Pages

1-9 as originally filed

Claims, Numbers

1-10 filed with telefax on 09.03.2004

Drawings, Sheets

1/4-4/4 as originally filed

2. With regard to the **language**, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language: , which is:

- the language of a translation furnished for the purposes of the international search (under Rule 23.1(b)).
- the language of publication of the international application (under Rule 48.3(b)).
- the language of a translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- contained in the international application in written form.
- filed together with the international application in computer readable form.
- furnished subsequently to this Authority in written form.
- furnished subsequently to this Authority in computer readable form.
- The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
- The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. The amendments have resulted in the cancellation of:

- the description, pages:
- the claims, Nos.:
- the drawings, sheets:

**INTERNATIONAL PRELIMINARY
EXAMINATION REPORT**

International application No. **PCT/IT 03/00211**

5. This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed (Rule 70.2(c)).

(Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.)

6. Additional observations, if necessary:

V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes: Claims	1-8
	No: Claims	9, 10
Inventive step (IS)	Yes: Claims	
	No: Claims	1-10
Industrial applicability (IA)	Yes: Claims	1-10
	No: Claims	

2. Citations and explanations

see separate sheet

**INTERNATIONAL PRELIMINARY
EXAMINATION REPORT - SEPARATE SHEET**

International application No. PCT/IT03/00211

Re Item V

Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Reference is made to the following documents:

- D1: WO-A-00 73053 (LEW KOK HIN ;KOTANI TAEKO (JP); PROCTER & GAMBLE (US)) 7 December 2000 (2000-12-07)
- D2: US-A-5 415 918 (MARTIN DAVID J ET AL) 16 May 1995 (1995-05-16)
- D3: US-A-5269983 (GALYN A. SCHULZ) 14 December 1993 (1993-12-14)
- D4: EP-A-1 151 852 (GEORGIA PACIFIC FRANCE) 7 November 2001 (2001-11-07)

2. In respect of Article 6 PCT, the following is observed.

2.1 The expression "... less rigid ..", claim 1, line 8, is ambiguous;

Therefore the subject-matter of claims 1 lacks clarity, cf. the Guidelines III-4.5 PCT.

2.2 Some features of the device of claim 1 are defined in terms of the use of the apparatus rather than in apparatus terms per se, thereby causing a lack of clarity of the subject-matter of claim 1, cf. Article 6 PCT.

2.3 An independent claim should specify clearly all of the essential features needed to define the invention. This is not the case with the independent claims 1, 5 and 9, which shows a non correspondence of essential features. The method defined by claim 5 for instance, does not lead to a product defined by claim 9. Similar accounts for claims 1 and 9.

The aforementioned claims therefore lack conciseness. Moreover, lack of clarity of

INTERNATIONAL PRELIMINARY
EXAMINATION REPORT - SEPARATE SHEET

International application No. PCT/IT03/00211

the claims as a whole arises, since the plurality of independent claims makes it difficult, if not impossible, to determine the matter for which protection is sought, and places an undue burden on others seeking to establish the extent of the protection.

Hence, claims 1, 5 and 9 do not meet the requirements of Article 6 PCT.

- 2.4 The term "for" has been interpreted as "suitable for", cf. the PCT-Guidelines, C-III, 4.8.
3. The following is stated under reference to paragraph 2 of this written report, whereby it is to be noted, that unclear terms (herein printed in bold) cannot be used for unambiguously distinguishing over prior art for the assessment of novelty or inventive step.
 - 3.1 The attention is further drawn to D2, column 1, lines 10 - 17, describing the state of the art technique of ply-bonding by embossing.
 - 3.2 Document D1 discloses, cf. p. 9, line 25 - p. 10, line 2 and the abstract and the figures, (the references in parentheses applying to D1) a device suitable for joining at least two layers for forming a multilayer web product, comprising a rigid first cylinder (10) and a rigid second cylinder (12), the latter having protuberances (28), said first and second cylinders rotating in opposite directions about respective axes of rotation, and defining between themselves a first nip (16), and further comprising a pressure roller (14), with a resilient surface, that is **less rigid** than said first and second cylinders (10, 12), said roller interacting with said second cylinder (12) and means being provided to press said pressure roller (14) and said second cylinder (12) against each other, said pressure roller forming with said second cylinder (12) an embossing nip (18) arranged downstream of said first nip with respect to the direction of rotation of said second cylinder (12), wherein means are provided to press said first cylinder (10) and said second cylinder (12) against each other **with a pressure such as to produce a localized mutual adhesion of the two layers passing through said first lamination and ply-bonding nip, due to a mingling of the fibers of the two layers; said two**

previously laminated and ply-bonded layers being passed and embossed in said embossing nip.

The subject-matter of claim 1 differs therefrom in that the first cylinder is smooth.

The subject-matter of claim 1 is therefore considered to be novel, and consequently claim 1 meets the requirements of Article 33(2) PCT.

It is to be noted that it is generally known to the person skilled in the art that the feature "smooth cylinder" is an alternative to the feature "cylinder with embossing elements" of document D1 and can be interchanged with that feature where circumstances make it desirable.

The solution of a clarified claim 1 would therefore not be considered as involving an inventive step (Article 33(3) PCT).

3.3 Document D3 discloses, cf. column 1, lines 23-24 and column 8, lines 27 and fig. 5 (the references in parentheses applying to this document), a method for producing a web product comprising at least a first and a second layer in which said first and second layers are united by lamination at a plurality of spots, wherein said first and second layers are laminated in a nip (123) between a first cylinder (116) and a rigid second cylinder (112), the latter having protuberances (113), said cylinders being pressed against each other, and the two layers are embossed between said second cylinder (112) and a pressure roller (114) which are pressed against each other, said pressure roller having a resilient surface, whereby said first and second cylinder (116, 112) are pressed against each other with a pressure such as to produce a localized mutual adhesion of the two layers due to a mingling of the fibers of the two layers in said lamination spots corresponding to said protuberances (113), the bonded plies being embossed between said second cylinder (112) and said pressure roller (114) according to a design corresponding to the distribution of the lamination spots.

The subject-matter of claim 5 differs therefrom in that the first cylinder is rigid and smooth.

**INTERNATIONAL PRELIMINARY
EXAMINATION REPORT - SEPARATE SHEET**

International application No. PCT/IT03/00211

Although the term "rigid" is a relative term, the term "rigid" is defined in relation to another cylinder in this claim, for which reason the subject-matter of claim 5 is considered to be novel, and consequently claim 5 meets the requirements of Article 33(2) PCT.

It is to be noted that it is generally known to the person skilled in the art that the feature "rigid and smooth cylinder" is an alternative to the feature "cylinder with embossing elements and resilient surface" of document D3 and can be interchanged with that feature where circumstances make it desirable.

The solution of a clarified claim 5 would therefore not be considered as involving an inventive step (Article 33(3) PCT).

3.4 Document D2 discloses, cf. column 1, lines 11-19 and column 1, line 55 - column 2, line 35 and the figures (the references in parentheses applying to this document), a sheet product (10) comprising at least two layers united **along peripheral bands** (12) along which said layers are embossed with embossing design protrusions, said layers being bonded to each other **along said bands**, wherein said layers are additionally ply-bonded by mingling of the fibers of the two layers in localized ply-bonding compression areas, said areas having a distribution corresponding to that of said embossing design protrusions.

Consequently the subject-matter of claim 9 lacks novelty, and claim 9 does not meet the requirements of Article 33(2) PCT.

4. Dependent claims 2-4, 6-8 and 10 does not seem to contain any features which, in combination with the features of any claim to which they refer, meet the requirements of the PCT in respect of inventive step.

4.1 A cylinder with protuberances arranged in bands is known from D4, cf. the figures.

4.2 A rubber coated pressure roll is known from D1, cf page 9, line 31 - page 10, line 2.

4.3 Protuberances with of a height of 0.1 - 1 mm, in peripheral bands is known from

**INTERNATIONAL PRELIMINARY
EXAMINATION REPORT - SEPARATE SHEET**

International application No. PCT/IT03/00211

D2, cf. column 6, example 1, lines 35-39 and figs. 1 and 2.

- 4.4 Longitudinal and transverse lamination and embossing bands are known from D2, cf. fig 2.
- 4.5 Lamination and embossing using two rigid cylinders and a resilient pressure roll is known from D1, cf. abstract.
5. Contrary to the requirements of Rule 5.1(a)(ii) PCT, the relevant background art disclosed in the documents D1, D2 and D3 is not mentioned in the description, nor are these documents identified therein.

EPO - DG 1

16. 03. 2004

(55)

Amended Claims

1. Device for joining at least two layers (V1, V2) for forming a multilayer web product (N), comprising a rigid first cylinder (1) and a rigid second cylinder (3), the latter having protuberances (3P), said first and second cylinders rotating in opposite directions about respective axes of rotation (1A, 3A), and defining between themselves a first nip (5), and further comprising a pressure roller (7), with a resilient surface (7A), that is less rigid than said first and second cylinders (1, 3), said roller interacting with said second cylinder (3) and means being provided to press said pressure roller (7) and said second cylinder (3) against each other, said pressure roller forming with said second cylinder (3) an embossing nip (9) arranged downstream of said first nip with respect to the direction of rotation of said second cylinder (3), characterized in that: said first cylinder (1) is smooth and means are provided to press said first cylinder (1) and said second cylinder (3) against each other with a pressure such as to produce a localized mutual adhesion of the two layers passing through said first lamination and ply-bonding nip (5), due to a mingling of the fibers of the two layers; said two previously laminated and ply-bonded layers being passed and embossed in said embossing nip (9).
2. Device according to claim 1, characterized in that said protuberances (3P) are arranged on said second cylinder (3) according to longitudinal bands parallel to the axis (3A) of said cylinder and to circumferential annular bands.
3. Device according to claim 1 or 2, characterized in that said pressure roller has a rubber coating (7A).
4. Device according to claim 1 or 2 or 3, characterized in that the protuberances (3P) on said second cylinder (3) are arranged in circumferential and longitudinal bands in order to generate on said web product (N) areas (G) of lamination and embossing in longitudinal and transverse bands.
5. Method for producing a web product comprising at least a first and a second layer (V1, V2), in which said first and second layers are united by lamination at a plurality of spots, wherein said first and second layers are

laminated in a nip (5) between a first cylinder and a rigid second cylinder (3), the latter having protuberances (3P), said cylinders being pressed against each other, and the two layers are embossed between said second cylinder (3) and a pressure roller (7) which are pressed against each other, said 5 pressure roller having a resilient surface (7A),

characterized in that said first cylinder (1) is rigid and smooth and that said first and second cylinder (1, 3) are pressed against each other with a pressure such as to produce a localized mutual adhesion of the two layers due to a mingling of the fibers of the two layers in said lamination spots 10 corresponding to said protuberances (3P), the bonded plies being embossed between said second cylinder (3) and said pressure roller (7) according to a design corresponding to the distribution of the lamination spots.

6. Method according to claim 5, characterized in that said first and second layers are united by lamination and then embossed along longitudinal 15 and transverse bands.

7. Method according to claim 5 or 6, characterized in that said web material (N) is divided into individual products (M) by cut lines extending along said longitudinal and transverse bands, the individual products then being folded.

20 8. Method according to claim 5, 6, or 7, characterized in that said layers are embossed so that protuberances (P) of between 0.1 and 1 mm in height are produced on them.

9. A sheet product (M) comprising at least two layers (V1, V2) united along peripheral bands (G) along which said layers are embossed with 25 embossing design protrusions (P1, P2), said layers being bonded to each other along said bands, characterized in that said layers are additionally ply-bonded by mingling of the fibers of the two layers in localized ply-bonding compression areas, said areas having a distribution corresponding to that of said embossing design protrusions.

30 10. Product according to claim 9, characterized in that the layers have protuberances with a height of between 0.1 and 1 mm along said peripheral bands.